Atty's Docket:Belersdorf 652.1
USSN 09/838,411
Detert, et al.,

CERTIFICATION OF FACSIMILE TRANSMISSION
I hereby certify that this correspondence is being transmitted by facsimile to the Assistant Commissioner For Patents, Washington, D.C. 20231, on September 15, 2003.

Theodore Gottlieb

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

SERIAL NO.	:	09/838,411
APPLICANT	:	Detert et al.,
FILED	:	19 April 2001
EXAMINER	:	Donald Wilson
ART UNIT	:	1713
FOR	:	Sulphonated Comb Polymers...

Hon. Assistant Commissioner of Patents
Washington, D.C. 20231

September 15, 2003

RESPONSE UNDER 37 CFR § 1.111

Sir:

This communication is in response to the office action of March 13, 2003.

Consideration of the remarks and entry of any amendment is respectfully requested.

CONDITIONAL PETITION FOR EXTENSION OF TIME

If any extension of time for this response is required, Applicants request that this be considered a petition therefore. Please charge the required fee to Deposit Account No. 14-1263.

ADDITIONAL FEES

Please charge any further insufficiency of fees, or credit any excess to Deposit Account No. 14-1263.

REMARKS

Claims 1-5 were in the application. Claim 5 has been withdrawn from consideration and claims 1-4 are pending.

Claims 2-4 have been amended, and new claims 6-12 have been added. No amendments have introduced new matter.

The issues raised by Examiner are addressed in the sequence in which they are raised in the office action.

Election of Species

As indicated in the telephone conversation between Mr. Kurt Briscoe and Examiner on 3/6/03, Applicants elect the species encompassed by Preparation Example 1.

I. ENABLEMENT

Claims 1-4 are rejected because Examiner believes that the specification is not enabling for:

1. Polyester arms having sulphone groups.
2. Polymeric aliphatic, cycloaliphatic and aromatic polycarboxylic acids and derivatives thereof.
3. Polyester sid chains attached through an ether (claim 3 nly).

Sulphone Groups

Respectfully, Examiner's statement that the specification is not enabling for side-arms having sulphone groups is incorrect. The sulphone group is formed by substitution of the OH or OMetal salt with another group on the polyester moiety. The OH and OM are known in the art to be excellent leaving groups when the sulfonic acid has an aromatic substitution.

See page 9, penultimate paragraph.

Thus, sulphones per se are not starting materials, and therefore are not listed in the preparative examples. However, aromatic sulphonates are listed in each example. Person with skill in the art would understand this reaction, and have little problem following the disclosed and known methodologies.

Accordingly, this rejection for the alleged lack of enablement for sulphone side groups should be withdrawn.

Main Polymeric Chains Having Polymeric aliphatic, cycloaliphatic and aromatic polycarboxylic acids

Applicants respectively disagree with Examiner. All preparative examples include non-sulphonated dicarboxylic acids. Although Examiner correctly indicates that these compounds may form anhydrides among themselves, they are known to form polymers with carboxylic side groups when esterified with alcohols as disclosed on the bottom of page 3, penultimate paragraph.

It should be noted that in the context of the main chains, the term polycarboxylic acids refers to the fact that the main chain may have several polycarboxylic side groups. See bottom page 7, to page 9 for the role of the carboxylic acids.

Accordingly, this rejection for the alleged lack of enablement for polycarboxylic groups should be withdrawn.

Polyester side chains attached through an ether (claim 3 only)

Applicants respectfully point out to Examiner that the structures in claim 3 are the polyester arms unlinked to the main chain. The terminal oxygens on the side arms are shown prior to reacting with carboxylic groups to form the ester linkage that Examiner has acknowledged.

Thus, these structures would be clear to those in the art to represent terminal - OH groups. For example, note later in claim 3 that the group has two terminal O's, thus reflecting the polyols disclosed, e.g., on page 10, last paragraph.

In sum, claims 3 does not disclose ether linkages of the sidearms to the main chain, but the polyol backbone of the side arm.

Applicants believe in good faith that they have addressed Examiner's enablement issues by showing that the disclosure would enable persons in the art to practice the claims.

Withdrawal of the enablement rejections is respectfully solicited.

II. INDEFINITENESS

All rejections have been addressed by the amendment filed herewith.

Items 17 and 18 have been directly addressed by amending claim 2, and introducing new claim 6 to recite the deleted embodiments.

Item 19 a-d, and f-k have been addressed by the amendment. Item 19e is responded to by stating that persons of skill in the art would understand that the usage of average molecular weight is the number average molecular weight. This is the most commonly used.

Detert et al.,
USSN 09/838 411

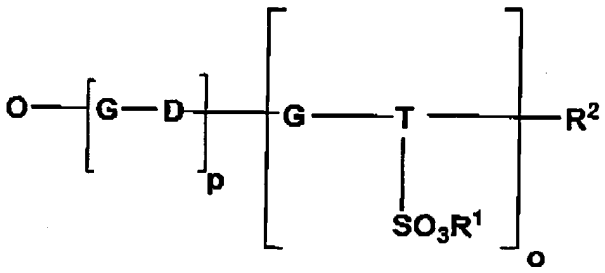
Beiersdorf 652.1

Pag 1 of 5 of AMENDMENTS TO THE CLAIMS

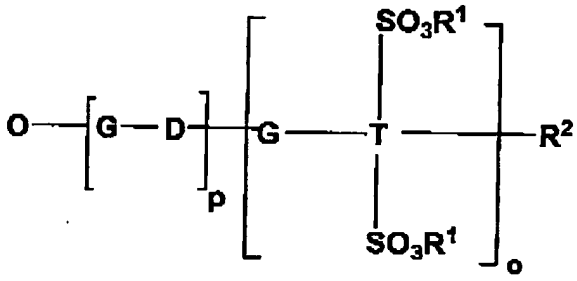
1. Water-soluble and/or water-dispersible comb polymers consisting of a polymer main chain and polyester side-arms which contain sulphone groups and are linked to said polymer main chain via ester groups.

2. (Currently amended) Comb polymers according to Claim 1, characterized in that their polymeric main chain is ~~chosen~~ selected from the group of polymeric aliphatic, cycloaliphatic or aromatic polycarboxylic acids and ~~derivatives~~ salts or esters, ~~thereof, such as, for example, polyacrylic acid, polymethacrylic acid and esters thereof (esters of the two acids with aliphatic, cycloaliphatic or aromatic alcohols with C_1 to C_{22}) maleic acid, maleic anhydride, fumaric acid and polynorbomenic acid.~~

3. (Currently amended) ~~Comb~~ The comb polymers according to Claim 1, characterized in that ~~they~~ the polyester side arms are chosen from the group of polyesters of the following generic structural formulae



Formula I

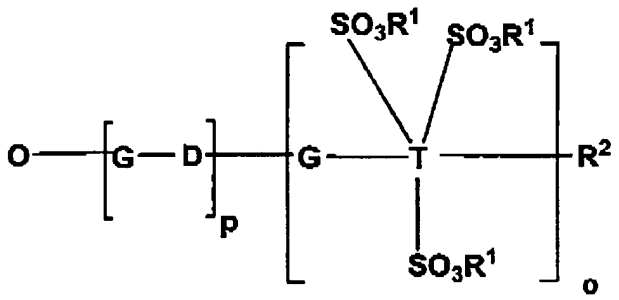


Formula II

Detert et al.,
USSN 09/838 411

Page 2 of 5 of AMENDMENTS TO THE CLAIMS

A1

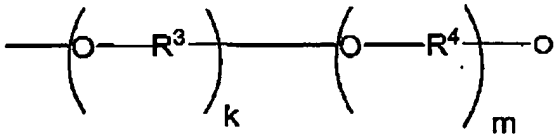


Formula III

where p and o are chosen such that average molecular weights of the main chain's repititve units ~~chain constituents used~~ are between ~~200~~1000 and 2,000,000 g/mol, ~~where the range 2000 - 100,000 g/mol is preferably used,~~ and wherein

the polyester side ~~chains~~ arms according to formula I - III ~~advantageously~~ consist of:

G : chosen from the group of aromatic, aliphatic or cycloaliphatic organyl units having a carbon number of from C_2 to C_m and containing at least two terminal oxygen atoms, or derivatives of a polyglycol of the form $HO-[R^3-O]_k-[R^4-O]_m-H$, corresponding to an organyl unit



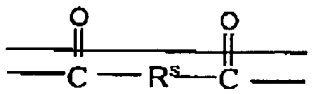
where the radicals R^3 and R^4 are alkyl n radicals having a carbon number of from C_2-C_{22}, where

Page 3 of 5 of AMENDMENTS TO THE CLAIMS

the two radicals ~~do not necessarily have to be different~~,may or may not be identical;

where ~~the following applies for the coefficients k and m: k+m~~ ≥ 1, where k and m can also be chosen such that the average molecular weights, referred to previously, of the main chain constituents used are achieved.;

D : ~~an~~ at least one aromatic, aliphatic or cycloaliphatic organyl unit having a carbon number of from C_2 to C_{22} and containing at least two terminal acyl groups, and where the at least one organyl units may or may not be identical.~~where combinations of two or more different acid components may also be present in the claimed target molecule, for example an organyl unit of the scheme~~



~~where R^5 can be aromatic and linear or cyclic, saturated or unsaturated aliphatic bifunctional radicals having carbon numbers of from C_2 to C_{22}.~~

T : a ~~compound~~ radical selected from the group consisiting of the sulphonated aromatic, aliphatic or cycloaliphatic organyl compounds containing at least two terminal acyl groups.

R^1 : can be lithium, sodium, potassium, magnesium, calcium, ammonium, monoalkylammonium, dialkylammonium, trialkylammonium or tetraalkylammonium, ~~inwhich the~~ wherein the alkyl ~~positions~~ groups of the amines are~~, independently of one another, occupied by~~ C_1 to C_{22}-alkyl radicals and 0 to 3 hydroxyl groups;

R^2: a molecular moiety ~~chosen~~ selected from the ~~groups~~ group consisting of

- aromatic, aliphatic ~~or~~ and cycloaliphatic amino functions ~~:-(-NH R^5, -NR^5_2, where R^5 can be an alkyl or aryl radical with~~ of C_1 to C_{22};)
- a group of formula -$COOR^6$, wherein R^6 is an aromatic, aliphatic or cycloaliphatic monocarboxyiic acid ~~groups; (-$COOR^6$, where R^6 is an alkyl or aryl radical with~~ of C_1 to C_{200};)
- aromatic, aliphatic r cycloaliphatic organyl radicals bridged via eth r functions:

Page 4 of 5 of AMENDMENTS TO THE CLAIMS

(-O-R^5)

- polyalkoxy compounds bridging via ether functions and ~~of the form~~ having the formula

-O-[R^7-O]$_q$[R^8-O]$_r$-Y, wherein

the radicals R^7 and R^8 are ~~advantageously~~ alkyl radicals having a carbon number of from C_2 to C_{22}, where the two radicals ~~do not necessarily have to~~ may or may not be different, and further wherein ~~The~~ the radical Y can either be hydrogen or ~~of~~ an aliphatic ~~nature with~~ radical of C_1-C_{22}., and wherein q+r ≥ 1.;

- mono- or polyethoxylated sulphonated organyl radicals bridging via ether functions, or ~~preferably~~ alkali metal or alkaline earth metal salts thereof., ~~such as, for example, advantageously characterized by the generic structural formula (O-CH$_2$-CH$_2$)$_s$-SO$_3$R^1 where s ≥1, and where s can also be chosen such that the average molecular weights, referred to previously, of the main chain constituents used are achieved.~~

4. Comb polymers according to Claim 1, characterized in that their average molecular weights are ~~advantageously~~ between ~~200~~ 1000 and 2,000,000 g/mol., ~~particularly advantageously between 200 and 100,000 g/mol, the range 1000 - 30,000 g/mol being preferably used, very particularly advantageously 5000-15,000 g/mol.~~

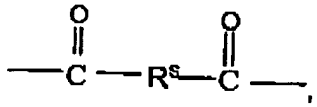
5. Hair-treatment compositions with an effective content of one or more comb polymers according to one of Claims 1 -4.

6. (Newly presented) The comb polymers of claim 2, wherein main chain is chosen from the group of polymers consisting of polyacrylic acid, polymethacrylic acid and salts and esters thereof, maleic acid, maleic anhydride, fumaric acid and polynorbornenic acid.

7. (Newly presented) The comb polymers of claim 3, wherein the main chain's repetitive units are between 2000 - 100,000 g/mol.

8. (Newly presented) The comb polymers of claim 3, wherein the rganyl unit is a bifunctional radical of

from C_2 to C_{22}.



wherein R^5 can be aromatic or linear or cyclic; saturated or unsaturated;

9. (Newly presented). The comb polymers of claim 3, wherein R^2 has the structural formula $-(O-CH_2-CH_2)_s-SO_3R^1$ where s ≥1.

10. (Newly presented). The comb polymers of claim 4 having an average molecular weight between 1000 and 100,000 g/mol.

11. (Newly presented). The comb polymers of claim 4 having an average molecular weight between 1000 - 30,000 g/mol .

12. (Newly presented). The comb polymers of claim 4 having an average molecular weight between 5000-15,000 g/mol.